

REMARKS/ARGUMENTS

Claims 11, 20-26, 29-35 and 37-41 are pending in this application. By this Amendment, claims 11, 20 and 29 are amended and claims 1, 4, 5, 18, 19, 27, 28 and 36 are canceled without prejudice or disclaimer. Claim 11 is amended to incorporate the subject matter of claim 36, which depends directly therefrom, claim 20 is amended for dependency, and claim 29 is amended to revert to an earlier form already searched and considered. It is respectfully submitted that these amendments to the claims do not raise new issues requiring further consideration. Support for the claims can be found throughout the specification, including the original claims and the drawings. Withdrawal of the rejections in view of the above amendments and the following remarks is respectfully requested.

Entry of the amended claims is proper under 37 C.F.R. §1.116 since the amendments: (1) place the application in condition for allowance (for the reasons discussed herein); (2) do not raise any new issues requiring further search and/or consideration (since the amendments amplify issues previously discussed throughout prosecution without incorporating additional subject matter); (3) satisfy a requirement of form asserted in the previous Office Action; and/or (4) place the application in better form for appeal (if necessary). Entry is thus requested.

I. Applicability of the Applied Prior Art References

MPEP 2141.01(a) states:

“[I]n order to rely on a reference as a basis for rejection of an applicant’s invention, the reference must either be in the field of applicant’s endeavor or, if not, then be reasonable pertinent to the particular problem with which the inventor was concerned.”

A. Suzuki, Im and Yamauchi

Applicant maintains the position that Suzuki, Im and Yamauchi are each non-analogous art, and thus not properly applied in a rejection of the present application, as set forth in numerous previously filed replies. More specifically, the claims of the present application are directed to a mask for use during deposition of a luminescent layer of an organic electroluminescent device. These masks block adjacent deposition areas, or adjacent sub-pixels, during fabrication of the display device (see paragraphs 32-38 and Figures 4A-4F of the present application). Once the pixel electrodes 48 have been formed atop the insulating layer 46 and extending into the vias 47, and the insulating boundaries 49 have been formed between adjacent pixels, a mask 170 is superposed on this structure to expose only portion(s) of the pixel electrode 48 to be coated with an organic electroluminescent layer 50, for example, by blocking adjacent areas (see in particular Figure 4E of the present application). After the organic electroluminescent layer 50 is deposited, the mask 170 is removed and a common electrode 51 is formed atop the structure to complete fabrication.

The holes in the claimed mask 170 through which the organic compound is applied, and in particular, the inner side edges of the holes, are specifically shaped so that when the organic layer 50 is applied to the electrode 48, an active area is maximized and a dead area is minimized (see paragraphs 4244 and Figures 6A-6B of the present application), thus improving resolution of the resulting display device.

In contrast, the shadow mask 25 disclosed by Suzuki includes apertures 31 through which light beams are directed onto a front panel of a CRT so as to generate a desired image. This type

of shadow mask 25 must be maintained in its position adjacent the front panel to maintain proper functionality of the CRT. The type of shadow mask 25 disclosed by Suzuki is clearly meant to remain in place, and not to be removed. One of ordinary skill in the art understands that this type of shadow mask is not used in an electroluminescent device, let alone to block adjacent areas during deposition of organic material, as is the mask set forth in the present application. Accordingly, it is respectfully submitted that Suzuki is in a different field of endeavor than the masks set forth in the present application, and thus is not reasonably pertinent to solving the various issues set forth therein. Im and Yamauchi each suffer deficiencies similar to Suzuki in this respect. Further, Suzuki's disclosure is directed at an apparatus for making this non-analogous art mask, and not the non-analogous art mask itself.

B. Wolk

Additionally, as set forth in the Amendments filed May 2, 2006 and September 14, 2006, Wolk is also non-analogous art. More specifically, Wolk discloses a system for orienting and patterning organic emissive materials in an organic electroluminescent display. The "holes" referred to by Wolk are in a hole transport layer, which allow holes to combine with electrons in an emission layer. For example, column 23, line 53 – column 24, line 6 of Wolk (referred to in the Office Action) discloses an organic electroluminescent display 800 including a substrate 810, an anode 820, a plurality of patterned hole transport layers 830, an emission layer 840, and a cathode 850. The hole transport layers 830 are not a series of holes forming a mask, but rather a layer whose elements have been patterned and aligned to allow recombination with electrons from the anode 820 in the emission layer 840. It would be well understood by one of ordinary

skill in the art that the holes discussed in Wolk's disclosure are not holes in any type of mask, and in particular, a mask for use during deposition of a luminescent layer of an organic electroluminescent device, as recited in the claims of the present application. Accordingly, it is respectfully submitted that Wolk is in a different field of endeavor than the masks set forth in the present application, and thus is not reasonably pertinent to solving the various issues set forth therein.

II. Rejections Under 35 U.S.C. §103(a)

The Office Action rejects claims 1, 4, 11, 18-27 and 38-41 under 35 U.S.C. §103(a) over U.S. Patent No. 4,001,842 to Suzuki et al. (hereinafter "Suzuki") in view of Im et al., U.S. Patent Publication No. 2002/0067117 (hereinafter "Im"), and further in view of U.S. Patent No. 4,168,450 to Yamauchi et al. (hereinafter "Yamauchi"). Claims 1, 4, 18, 19 and 27 are canceled. This rejection, in so far as it applied to claims 11, 20-26 and 38-41, is respectfully traversed.

As set forth above, Suzuki, Im and Yamauchi are each non-analogous art, and thus not properly applied in a rejection of the present application. However, even if one were to improperly apply Suzuki, Im and Yamauchi in a rejection of the present application, Suzuki, Im and Yamauchi, either alone or in combination, still neither disclose nor suggest at least the features recited in independent claim 11, let alone the claimed combination of features.

Independent claim 11 is directed to a mask for use during deposition of a luminescent layer of an organic electroluminescent device. Independent claim 11 recites a plurality of holes aligned uniformly running parallel to each other along an axis of the mask, including at least one

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angled surface formed on at least one side of each of the plurality of holes. Independent claim 11 also recites a plurality of bridges located between the plurality of holes, wherein each bridge includes angled surface portions formed on each inner side surface thereof, and wherein each of the holes has a shape and a size corresponding to a pixel region of the organic electroluminescent device, wherein each of the plurality of holes is configured to block an adjacent sub-pixel area during deposition of an organic electro-luminescent material during fabrication of an organic electroluminescent device, and wherein a thickness of the bridges is less than a thickness of the mask in areas of the mask having no angled surface portions. Suzuki neither discloses nor suggests at least such features, let alone the respective claimed combinations of features, and Im and Yamauchi, either alone or in combination, fail to overcome the deficiencies of Suzuki.

Suzuki discloses a shadow mask 25 for use with a CRT. The shadow mask 25 includes rectangular apertures 31 separated by bridge portions 32. As set forth above, Suzuki neither discloses nor suggests that the mask can or should be used to fabricate an organic electroluminescent device, as recited in independent claim 11.

As shown in Figures 6A-6B of the present application, a thickness of the bridges 140 is less than a thickness of the mask having no angled surface portion 170. In contrast, as can be seen in Figures 2, 3, 5, 8 and 10 of Suzuki, the mask 25 disclosed by Suzuki appears to have a constant thickness, with the bridge portions 32 having the same thickness as the other portions of the mask 25. Thus, Suzuki neither discloses nor suggests that a thickness of the bridge portions 32 is less than a thickness of the other areas of the shadow mask 25, as recited in

independent claim 11.

Im discloses a tension mask assembly 10 for a CRT formed of a metal foil 11, including a plurality of slots 13 formed between a plurality of strips 12, with real bridges 14 supporting the slots 13, and dummy bridges 15 connecting the strips 12 and the slots 13. Im suffers deficiencies similar to those of Suzuki, in that Im neither discloses nor suggests that a thickness of the either the real bridges 14 or the dummy bridges 15 is less than a thickness of the other areas of foil 11 which form the tension mask 10, as recited in independent claim 11.

Yamauchi discloses a shadow mask 10 including a plurality of slots 14 connected by a plurality of bridges 15 whose inner surfaces 15b are inclined in parallel with electron beams passing therethrough. Yamauchi suffers deficiencies similar to those of Suzuki and Im, in that Yamauchi neither discloses nor suggests that a thickness of the bridges 15 is less than a thickness of the other areas of the shadow mask 10, as recited in independent claim 11. The Office Action asserts that the thickness of the angled portion 15b of the bridge 15 of Yamauchi's shadow mask 10 is less than other portions of the shadow mask 10. However, it is the solid, non-angled portion of the mask 10 which forms the bridge 15, and the thickness of the bridge 15 is substantially the same as the other portions of the shadow mask 10 disclosed by Yamauchi.

Accordingly, it is respectfully submitted that independent claim 11 is allowable over the applied combination, and thus the rejection of independent claim 11 under 35 U.S.C. §103(a) over Suzuki, Im and Yamauchi should be withdrawn. Dependent claims 38 and 39 are allowable at least for the reasons set forth above with respect to independent claim 11, from which they respectively depend, as well as for their added features.

The Office Action rejects claims 29-33, 35 and 36 under 35 U.S.C. §103(a) over Suzuki and Yamauchi in view of U.S. Patent No. 6,485,884 to Wolk et al. (hereinafter "Wolk"). Claim 36 is canceled. This rejection, in so far as it applies to claims 29-33 and 35, is respectfully traversed.

As set forth above, Applicant maintains the position that Suzuki, Yamauchi and Wolk are each non-analogous art, and thus may not be properly applied in a rejection of the present application. However, even if Suzuki, Yamauchi and Wolk were improperly applied in such a rejection, such a combination still neither discloses nor suggests at least the features recited in independent claim 29, let alone the claimed combination of features.

Independent claim 29 is directed to a mask for use during deposition of a luminescent layer of an organic electroluminescent device, including a plurality of strip-type slots, wherein a thickness of the mask in areas of the mask positioned between adjacent slots is less than a thickness of the mask in areas of the mask having no angled surface portions. As set forth above, Suzuki and Yamauchi, either alone or in combination, neither disclose nor suggest at least such features, or the claimed combination of features. Further, Wolk is merely cited as allegedly teaching slot alignment, and thus fails to overcome the deficiencies of Suzuki and Yamauchi. Accordingly, it is respectfully submitted that independent claim 29 is allowable over the applied combination, and thus the rejection of independent claim 29 under 35 U.S.C. §103(a) over Suzuki, Yamauchi and Wolk should be withdrawn. Dependent claims 30-33 are allowable at least for the reasons set forth above with respect to independent claim 29, from which they depend, as well as for their added features.

Dependent claims 20-26, 40 and 41, which depend from independent claim 29, are rejected under 35 U.S.C. §103(a) over Suzuki, Im and Yamauchi. Dependent claims 10-16, 40 and 41 are allowable over Suzuki and/or Yamauchi and/or Wolk at least for the reasons set forth above with respect to independent claim 29, from which they depend, as well as for their added features. Further, as set forth above, Im fails to overcome the deficiencies of Suzuki, Yamauchi and Wolk. Accordingly, it is respectfully submitted that claims 20-26, 40 and 41 are allowable over the applied combination, and thus the rejection of claims 20-26, 40 and 41 under 35 U.S.C. §103(a) over Suzuki, Im and Yamauchi should be withdrawn.

Likewise, dependent claim 35, which depends from independent claim 11, is rejected under 35 U.S.C. §103(a) over Suzuki, Yamauchi and Wolk. Dependent claim 35 is allowable over Suzuki and/or Im and/or Yamauchi at least for the reasons set forth above with respect to independent claim 11, from which it depends, as well as for their added features. Further, as set forth above, Wolk fails to overcome the deficiencies of Suzuki, Im and Yamauchi. Accordingly, it is respectfully submitted that claim 35 is allowable over the applied combination, and thus the rejection of claim 35 under 35 U.S.C. §103(a) over Suzuki, Yamauchi and Wolk should be withdrawn.

The Office Action rejects claims 28, 34 and 37 under 35 U.S.C. §103(a) over Suzuki and Im, or alternatively, over Suzuki, Yamauchi and Wolk in view of Korean Patent Publication No. 2001-087952 (hereinafter "KR '952"). Claim 27 is canceled. The rejection(s), in so far as they apply to claims 34 and 37, are respectfully traversed.

Dependent claims 34 and 37 are allowable over Suzuki, Im, Yamauchi and Wolk, either

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alone or in combination, at least for the reasons set forth above with respect to independent claims 11 and 29, from which they respectively depend, as well as for their added features. Further, KR '952 is merely cited as allegedly teaching shapes of strip-type slots, and thus fails to overcome the deficiencies of Suzuki, Im, Yamauchi and Wolk. Accordingly, it is respectfully submitted that claims 34 and 37 are allowable over the applied combination(s), and thus the rejection(s) of claims 34 and 37 under 35 U.S.C. §103(a) over Suzuki, Im, Yamauchi, Wolk and KR '952 should be withdrawn.

III. Conclusion

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney, **JOANNA K. MASON**, at the telephone number listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
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